

Notice of Allowability	Application No.	Applicant(s)	
	10/669,972	FLEYTMAN, YAKOV	
	Examiner	Art Unit	
	Erica E Cadugan	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to sn 10/669,972, filed 9/24/03 and interview of 2/14/05.
2. ☒ The allowed claim(s) is/are 1-11.
3. ☒ The drawings filed on 24 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>9/24/2003</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

FW

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Mr. Yakov Fleytman on February 14, 2005.

3. The application was restricted as follows:

This application contains claims directed to the following patentably distinct species of the claimed invention: the species of Figures 5-7 and the species of Figures 8-21.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there does not appear to be a generic claim.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

4. During a telephone conversation with Yakov Fleytman on February 10, 2005 a provisional election was made without traverse to prosecute the invention of the species of Figures 5-7, with claims 1-11 being readable thereon. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-18 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. The application has been amended as follows:

Claim 1 (Currently Amended). Method of producing an enveloping worm including generation of an enveloping worm thread surface by a cutter rolling around a base circle of the enveloping worm on a cutting plane with simultaneous rotation of an enveloping worm blank around an axis of said enveloping worm, where a cutting edge of said cutter furthermore rotates around a tooling axis.

Claim 2. (Currently Amended). Method of producing an enveloping worm as recited in claim 1 where said tooling axis has additional motion, in a direction normal to said cutting plane.

Claim 3 (Currently Amended). Method of producing an enveloping worm as recited in claim 1 where said tooling axis has additional motion by changing an angle between said tooling axis of rotation and said cutting plane.

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Claim 4 (Currently Amended). Method of producing an enveloping worm as recited in claim 1 where a radius of rotation of said cutting edge is equal to or bigger than the maximum radius of convex curvature of said worm thread.

Claim 5 (Currently Amended). Method of producing an enveloping worm as recited in claim 1 where a radius of rotation of said cutting edge is equal to or smaller than the maximum radius of concave curvature of said worm thread.

Claim 6 (Currently Amended). Method of producing an enveloping worm as recited in claim 1 including placement of said cutter in a new position defined by repositioning of said cutting plane from an original position to said new position.

Claim 7 (Currently Amended). Method of producing an enveloping worm as recited in claim 6, where said repositioning of said cutter from said original position into said new position is defined by turning said cutter relative to [said] a base coordinate system and said enveloping worm axis of rotation.

Claim 8 (Currently Amended). Method of producing an enveloping worm as recited in claim 6, where said repositioning of said cutter from said original position into said new position is defined by transferring said cutter relative to [said] a base coordinate system and said enveloping worm axis of rotation.

Claim 9 (Currently Amended). Method of producing an enveloping worm as recited in claim 6, where said repositioning of said cutter from said original position into said new position is defined by combinations of transferring and turning said cutter relative to [said] a base coordinate system and said enveloping worm axis of rotation.

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Claim 10 (Currently Amended). Method of producing an enveloping worm as recited in claim 6, wherein placement of said cutter in said new position is for machining [said] a convex face of said enveloping worm thread.

Claim 11 (Currently Amended). Method of producing an enveloping worm as recited in claim 6, wherein placement of said cutter in said new position is for machining [said] a concave surface of said enveloping worm thread.

Non-elected claims 12-18 have been canceled.

6. The following is an examiner's statement of reasons for allowance:

References such as U.S. Pat. No. 5,961,260 to Kasler et al., GB 2276575, U.S. Pat. No.'s 2,006,750 to Shlesinger, 5,175,962 to Pedersen, 3,099,939 to Haase et al., and U.S. Re.38,504 to Kasler et al. all teach cutting methods that are *similar* to that of the present invention as set forth in independent claim 1.

However, none of Kasler, '575, Shlesinger, Pedersen, and Haase et al. teach any sort of method of producing "an enveloping worm" as set forth in independent claim 1, nor is there any combinable teaching in the prior art of record that would reasonably motivate one having ordinary skill in the art to so modify the teachings of these references, and thus, these references do not render obvious the present invention as set forth in independent claim 1. [Note specifically that in both of the Kasler references, the workpiece is a spiral bevel-toothed gear, in '575, the workpiece is an integrally bladed compressor rotor, in Shlesinger, the workpiece is a spiral bevel or hypoid gear (see page 1, lines 1-6, for example), in Pedersen, the workpiece is a spur or helical gear, and in Haase, the workpiece is a spiral bevel or hypoid gear. Further note

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that the present specification clearly distinguishes between spiral bevel gears, hypoid gears, and enveloping gears and especially enveloping worm gears on, for example, page 2, lines 22-23.]

Also, in the method taught by U.S. Pat. No. 1,987,877 to Trbojevich, as shown in Figure 6, cutter 73 is indexed about the axis of the index wheel 66 to a desired position, then the workpiece 29 is rotated about the vertical axis shown in Figure 6 while the cutter 73 is rotated about its central axis (as opposed to the axis of the index wheel 66). See Figure 6 and p. 1, line 40 through p. 2, line 16, for example. However, firstly, neither the indexing of the cutter nor the rotation of the cutter about its own axis are a “rolling” of the cutter “around a base circle of the enveloping worm”, and secondly, note that the indexing movement of the cutter does not occur simultaneously with the rotation of the workpiece (see Figure 6 and page 1, line 40 through page 2, line 16, for example). Also, there is no combinable teaching in the prior art of record that would reasonably motivate one having ordinary skill in the art to so modify the teachings of Trbojevich, and thus, for at least the foregoing reasoning, Trbojevich does not render obvious the present invention as set forth in independent claim 1.

Similarly, in each of U.S. Pat. No.'s 1,965,002 to Richer (see Figure 12, for example), 3,608,394 to Ishiwaka (see Figure 2, for example), and 5,018,403 to Umezono et al. (see Figure 2, for example), the cutter is rotated around plural axes (and thus at least teaches the rotation of the cutter around a “tooling axis” as claimed as well as around an additional axis). However, in no case in these references is one of the rotation movements of the cutter a “rolling” of the cutter “around a base circle of the enveloping worm” as set forth in independent claim 1, nor is there any combinable teaching in the prior art of record that would reasonably motivate one having ordinary skill in the art to so modify the teachings of any of these references, and thus, for at

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least the foregoing reasoning, these references do not render obvious the present invention as set forth in independent claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

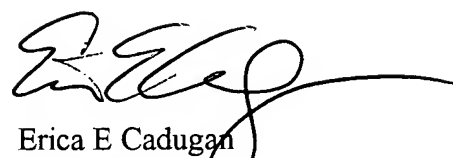
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H. Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erica E Cadugan
Primary Examiner
Art Unit 3722

eec
February 23, 2005